

# SEQUENCE LISTING

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 Loper, John C.  
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<120> CYTOCHROME P450 MONOOXYGENASE AND NADPH CYTOCHROME P450 OXIDOREDUCTASE  
 GENES AND PROTEINS RELATED TO THE OMEGA HYDROXYLASE COMPLEX OF CANDIDA  
 TROPICALIS AND METHODS RELATING THERETO

<130> 1010-16

<140> US 09/302,602

<141> 1999-04-30

<160> 118

<170> PatentIn version 3.1

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 cacagcagag ccatgttgag accacagttt gccagagaac aagttgctca tgtgacgtcg 480  
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<210> 38  
 <211> 26  
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 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 38

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<223> Description of Artificial Sequence: Primer

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<210> 46

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25

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<212> DNA

<213> Artificial Sequence

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<210> 50  
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<223> Description of Artificial Sequence: Primer

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 <223> Description of Artificial Sequence: Primer

<400> 57



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 <223> Description of Artificial Sequence: Primer

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<210> 62  
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<220>

[illegible]

10. *Journal of the American Medical Association*, 1997; 278: 1039-1044.

**Abstract**

Descrip

49  
DNA

aactg agt

Descript

56

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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<210> 68

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 68

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<210> 69

<211> 53

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Primer

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<210> 70

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

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<210> 71

<211> 49

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 71

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<220>  
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<400> 74  
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<210> 75  
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<223> Description of Artificial Sequence: Primer

<400> 75  
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<220>  
<223> Description of Artificial Sequence: Primer

<400> 76

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<223> Description of Artificial Sequence: Primer

<400> 78  
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<210> 79  
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<220>  
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<213> Candida tropicalis

<400> 81

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 <211> 679  
 <212> PRT  
 <213> CANDIDATROPICALIS

<400> 83

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Asp Thr Gly Phe Leu Asn Thr Asp Ser Gly Ser Asn Ser Arg Asp Val  
 35 40 45

Leu Leu Thr Leu Lys Lys Asn Asn Lys Asn Thr Leu Leu Leu Phe Gly  
 50 55 60

Ser Gln Thr Gly Thr Ala Glu Asp Tyr Ala Asn Lys Leu Ser Arg Glu  
 65 70 75 80

Leu His Ser Arg Phe Gly Leu Lys Thr Met Val Ala Asp Phe Ala Asp  
 85 90 95

Tyr Asp Trp Asp Asn Phe Gly Asp Ile Thr Glu Asp Ile Leu Val Phe  
 100 105 110

Phe Ile Val Ala Thr Tyr Gly Glu Gly Glu Pro Thr Asp Asn Ala Asp  
 115 120 125

Glu Phe His Thr Trp Leu Thr Glu Glu Ala Asp Thr Leu Ser Thr Leu  
 130 135 140

Lys Tyr Thr Val Phe Gly Leu Gly Asn Ser Thr Tyr Glu Phe Phe Asn  
 145 150 155 160

Ala Ile Gly Arg Lys Phe Asp Arg Leu Leu Ser Glu Lys Gly Gly Asp  
 165 170 175

Arg Phe Ala Glu Tyr Ala Glu Gly Asp Asp Gly Thr Gly Thr Leu Asp

180

185

190

Glu Asp Phe Met Ala Trp Lys Asp Asn Val Phe Asp Ala Leu Lys Asn  
195 200 205

Asp Leu Asn Phe Glu Glu Lys Glu Leu Lys Tyr Glu Pro Asn Val Lys  
210 215 220

Leu Thr Glu Arg Asp Asp Leu Ser Ala Ala Asp Ser Gln Val Ser Leu  
225 230 235 240

Gly Glu Pro Asn Lys Lys Tyr Ile Asn Ser Glu Gly Ile Asp Leu Thr  
245 250 255

Lys Gly Pro Phe Asp His Thr His Pro Tyr Leu Ala Arg Ile Thr Glu  
260 265 270

Thr Arg Glu Leu Phe Ser Ser Lys Asp Arg His Cys Ile His Val Glu  
275 280 285

Phe Asp Ile Ser Glu Ser Asn Leu Lys Tyr Thr Thr Gly Asp His Leu  
290 295 300

Ala Ile Trp Pro Ser Asn Ser Asp Glu Asn Ile Lys Gln Phe Ala Lys  
305 310 315 320

Cys Phe Gly Leu Glu Asp Lys Leu Asp Thr Val Ile Glu Leu Lys Ala  
325 330 335

Leu Asp Ser Thr Tyr Thr Ile Pro Phe Pro Thr Pro Ile Thr Tyr Gly  
340 345 350

Ala Val Ile Arg His His Leu Glu Ile Ser Gly Pro Val Ser Arg Gln  
355 360 365

Phe Phe Leu Ser Ile Ala Gly Phe Ala Pro Asp Glu Glu Thr Lys Lys  
370 375 380

Ala Phe Thr Arg Leu Gly Gly Asp Lys Gln Glu Phe Ala Ala Lys Val  
385 390 395 400

Thr Arg Arg Lys Phe Asn Ile Ala Asp Ala Leu Leu Tyr Ser Ser Asn  
405 410 415

Asn Ala Pro Trp Ser Asp Val Pro Phe Glu Phe Leu Ile Glu Asn Val  
420 425 430

Pro His Leu Thr Pro Arg Tyr Tyr Ser Ile Ser Ser Ser Ser Leu Ser  
435 440 445

Glu Lys Gln Leu Ile Asn Val Thr Ala Val Val Glu Ala Glu Glu Glu  
450 455 460

Ala Asp Gly Arg Pro Val Thr Gly Val Val Thr Asn Leu Leu Lys Asn  
465 470 475 480

Val Glu Ile Val Gln Asn Lys Thr Gly Glu Lys Pro Leu Val His Tyr  
485 490 495

Asp Leu Ser Gly Pro Arg Gly Lys Phe Asn Lys Phe Lys Leu Pro Val  
500 505 510

His Val Arg Arg Ser Asn Phe Lys Leu Pro Lys Asn Ser Thr Thr Pro  
515 520 525

Val Ile Leu Ile Gly Pro Gly Thr Gly Val Ala Pro Leu Arg Gly Phe  
530 535 540

Val Arg Glu Arg Val Gln Gln Val Lys Asn Gly Val Asn Val Gly Lys  
545 550 555 560

Thr Leu Leu Phe Tyr Gly Cys Arg Asn Ser Asn Glu Asp Phe Leu Tyr  
565 570 575

Lys Gln Glu Trp Ala Glu Tyr Ala Ser Val Leu Gly Glu Asn Phe Glu  
580 585 590

Met Phe Asn Ala Phe Ser Arg Gln Asp Pro Ser Lys Lys Val Tyr Val  
595 600 605

Gln Asp Lys Ile Leu Glu Asn Ser Gln Leu Val His Glu Leu Leu Thr  
610 615 620

Glu Gly Ala Ile Ile Tyr Val Cys Gly Asp Ala Ser Arg Met Ala Arg  
625 630 635 640

Asp Val Gln Thr Thr Ile Ser Lys Ile Val Ala Lys Ser Arg Glu Ile  
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Ser Glu Asp Lys Ala Ala Glu Leu Val Lys Ser Trp Lys Val Gln Asn  
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Arg Tyr Gln Glu Asp Val Trp  
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35 40 45

Leu Leu Thr Leu Lys Lys Asn Asn Lys Asn Thr Leu Leu Leu Phe Gly  
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 atgtccaact agacgggtgg tttggcttca aatttggccg tgaattcctc aaagctaaaa 1200  
 gtgctgggag gcaggttgat ttaatcatct cccgtttcca cgataatgag gacactttct 1260

ccagctatgc ttttggcaac catgtggtgt tcaccagga ccccgagaat atcaaggcgc	1320
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actactatgt tcagaaagcc ttggatgcta cccagagga acttgaaaaa caaggcgggt	1860
atgtgttctt gtacgagctt gccaaagcaga cgaaagaccc caatgtgttg cgtgaccagt	1920
ctttgaacat cttgttggct ggaagggaca ccactgctgg gttgttgtcc tttgctgtgt	1980
ttgagttggc caggaaccca cacatctggg ccaagttgag agaggaaatt gaatcacact	2040
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agtacttgaa agccgtgttg aacgaaacgt tgagattaca cccaagtgtc ccaagaaacg	2160
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tacgaggggt tgcctctggt ctaagaagga cccccaggt tgcaaacatg ttgcaactgca	3000

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ttcacgcaca ccagtagca cggatggtat ggggttcaagt ttgggcggga gtttctcaag 3420  
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<211> 3348  
<212> DNA  
<213> Candida tropicalis

<400> 94  
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ctgcaacgat atctgccaaag gtatatagca gaacgtgctg atggttcctc cggatcatatt 180  
ctgttggttag ttctgcaggt aaatttggat gtcaggtagt ggaggaggt ttgtatcggg 240  
tgtgttttct tcttctctc tctctgattc aacctccacg tctccttcgg gttctgtgtc 300  
tgtgtctgag tegtactgtt ggattaagtc catcgcatgt gtgaaaaaaaa gtagcgctta 360  
tttagacaac cagttcgttg ggcgggtatc agaaatagtc tgttgtgcac gaccatgagt 420  
atgcaacttg acgagacgtc gttaggaatc cacagaatga tagcaggaag cttactacgt 480  
gagagattct gcttagagga tgttctcttc ttgttgattc cattaggtgg gtatcatctc 540  
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ctatcacttc tacatgtcaa cctacgatgt atctcatcac catctagttt cttggcaatc 660  
gtttatttgt tatgggtcaa catccaatac aactccacca atgaagaaga aaaacggaaa 720  
gcagaatacc agaatgacag tgtgagttcc tgaccattgc taatctatgg ctatatctag 780  
tttgctatcg tgggatgtga tctgtgtcgt cttcatttgc gtttgtgttt atttcgggta 840  
tgaatattgt tatactaaat acttgatgca caaacatggc gctcgagaaa tcgagaatgt 900



gtcggcaacc ccgcgtatat gtccatgtaa ttctccatgg ccacctccat caacacactg 2640  
 atggagcgac tgacggtgcc accactgccc tcggttgagt caaggcagta tgatgccggg 2700  
 atccagtact ccaatgggaa cctctgcacg gtgtcgctgc agtttttgag gcgtatttcg 2760  
 atccatgatc gttctttggt gctgtagtat aacgagctct tgggtgcctt gaaatggaac 2820  
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 atgtatatcc gcatcaccca agactcttca gcctgttaca acgactgagg ctgttggccg 3060  
 tgtgaccaat tgggtttcttt ggtgacctag attgggtccc cagggaaagc aagggtgct 3120  
 aggggggcat accaaacaag gtcgtgtaat cagtatctat ggtgctacca tgtgtgtggt 3180  
 tggggggaaa ttcccgcat tttgtgtaac gaaagttcta gaaagttctc gtgggttctg 3240  
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<210> 95  
 <211> 523  
 <212> PRT  
 <213> CANDIDATROPICALIS

<400> 95

Met Ala Thr Gln Glu Ile Ile Asp Ser Val Leu Pro Tyr Leu Thr Lys  
 1 5 10 15

Trp Tyr Thr Val Ile Thr Ala Ala Val Leu Val Phe Leu Ile Ser Thr  
 20 25 30

Asn Ile Lys Asn Tyr Val Lys Ala Lys Lys Leu Lys Cys Val Asp Pro  
 35 40 45

Pro Tyr Leu Lys Asp Ala Gly Leu Thr Gly Ile Leu Ser Leu Ile Ala  
 50 55 60

Ala Ile Lys Ala Lys Asn Asp Gly Arg Leu Ala Asn Phe Ala Asp Glu  
 65 70 75 80

Val Phe Asp Glu Tyr Pro Asn His Thr Phe Tyr Leu Ser Val Ala Gly  
 85 90 95



Ala Leu Lys Ile Val Met Thr Val Asp Pro Glu Asn Ile Lys Ala Val  
100 105 110

Leu Ala Thr Gln Phe Thr Asp Phe Ser Leu Gly Thr Arg His Ala His  
115 120 125

Phe Ala Pro Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly  
130 135 140

Trp Lys His Ser Arg Ala Met Leu Arg Pro Gln Phe Ala Arg Asp Gln  
145 150 155 160

Ile Gly His Val Lys Ala Leu Glu Pro His Ile Gln Ile Met Ala Lys  
165 170 175

Gln Ile Lys Leu Asn Gln Gly Lys Thr Phe Asp Ile Gln Glu Leu Phe  
180 185 190

Phe Arg Phe Thr Val Asp Thr Ala Thr Glu Phe Leu Phe Gly Glu Ser  
195 200 205

Val His Ser Leu Tyr Asp Glu Lys Leu Gly Ile Pro Thr Pro Asn Glu  
210 215 220

Ile Pro Gly Arg Glu Asn Phe Ala Ala Ala Phe Asn Val Ser Gln His  
225 230 235 240

Tyr Leu Ala Thr Arg Ser Tyr Ser Gln Thr Phe Tyr Phe Leu Thr Asn  
245 250 255

Pro Lys Glu Phe Arg Asp Cys Asn Ala Lys Val His His Leu Ala Lys  
260 265 270

Tyr Phe Val Asn Lys Ala Leu Asn Phe Thr Pro Glu Glu Leu Glu Glu  
275 280 285

Lys Ser Lys Ser Gly Tyr Val Phe Leu Tyr Glu Leu Val Lys Gln Thr  
290 295 300

Arg Asp Pro Lys Val Leu Gln Asp Gln Leu Leu Asn Ile Met Val Ala  
305 310 315 320

Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Ala Leu Phe Glu Leu  
 325 330 335

Ala Arg His Pro Glu Met Trp Ser Lys Leu Arg Glu Glu Ile Glu Val  
 340 345 350

Asn Phe Gly Val Gly Glu Asp Ser Arg Val Glu Glu Ile Thr Phe Glu  
 355 360 365

Ala Leu Lys Arg Cys Glu Tyr Leu Lys Ala Ile Leu Asn Glu Thr Leu  
 370 375 380

Arg Met Tyr Pro Ser Val Pro Val Asn Phe Arg Thr Ala Thr Arg Asp  
 385 390 395 400

Thr Thr Leu Pro Arg Gly Gly Gly Ala Asn Gly Thr Asp Pro Ile Tyr  
 405 410 415

Ile Pro Lys Gly Ser Thr Val Ala Tyr Val Val Tyr Lys Thr His Arg  
 420 425 430

Leu Glu Glu Tyr Tyr Gly Lys Asp Ala Asn Asp Phe Arg Pro Glu Arg  
 435 440 445

Trp Phe Glu Pro Ser Thr Lys Lys Leu Gly Trp Ala Tyr Val Pro Phe  
 450 455 460

Asn Gly Gly Pro Arg Val Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu  
 465 470 475 480

Ala Ser Tyr Val Ile Thr Arg Leu Ala Gln Met Phe Glu Thr Val Ser  
 485 490 495

Ser Asp Pro Gly Leu Glu Tyr Pro Pro Pro Lys Cys Ile His Leu Thr  
 500 505 510

Met Ser His Asn Asp Gly Val Phe Val Lys Met  
 515 520

<210> 96

<211> 522

<212> PRT

<213> CANDIDATROPICALIS

<400> 96

Met Thr Val His Asp Ile Ile Ala Thr Tyr Phe Thr Lys Trp Tyr Val  
1 5 10 15

Ile Val Pro Leu Ala Leu Ile Ala Tyr Arg Val Leu Asp Tyr Phe Tyr  
20 25 30

Gly Arg Tyr Leu Met Tyr Lys Leu Gly Ala Lys Pro Phe Phe Gln Lys  
35 40 45

Gln Thr Asp Gly Cys Phe Gly Phe Lys Ala Pro Leu Glu Leu Leu Lys  
50 55 60

Lys Lys Ser Asp Gly Thr Leu Ile Asp Phe Thr Leu Gln Arg Ile His  
65 70 75 80

Asp Leu Asp Arg Pro Asp Ile Pro Thr Phe Thr Phe Pro Val Phe Ser  
85 90 95

Ile Asn Leu Val Asn Thr Leu Glu Pro Glu Asn Ile Lys Ala Ile Leu  
100 105 110

Ala Thr Gln Phe Asn Asp Phe Ser Leu Gly Thr Arg His Ser His Phe  
115 120 125

Ala Pro Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Ala Gly Trp  
130 135 140

Lys His Ser Arg Ser Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Ile  
145 150 155 160

Ser His Val Lys Leu Leu Glu Pro His Val Gln Val Phe Phe Lys His  
165 170 175

Val Arg Lys Ala Gln Gly Lys Thr Phe Asp Ile Gln Glu Leu Phe Phe  
180 185 190

Arg Leu Thr Val Asp Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val  
195 200 205

Glu Ser Leu Arg Asp Glu Ser Ile Gly Met Ser Ile Asn Ala Leu Asp  
210 215 220

Phe Asp Gly Lys Ala Gly Phe Ala Asp Ala Phe Asn Tyr Ser Gln Asn  
225 230 235 240

Tyr Leu Ala Ser Arg Ala Val Met Gln Gln Leu Tyr Trp Val Leu Asn  
245 250 255

Gly Lys Lys Phe Lys Glu Cys Asn Ala Lys Val His Lys Phe Ala Asp  
260 265 270

Tyr Tyr Val Asn Lys Ala Leu Asp Leu Thr Pro Glu Gln Leu Glu Lys  
275 280 285

Gln Asp Gly Tyr Val Phe Leu Tyr Glu Leu Val Lys Gln Thr Arg Asp  
290 295 300

Lys Gln Val Leu Arg Asp Gln Leu Leu Asn Ile Met Val Ala Gly Arg  
305 310 315 320

Asp Thr Thr Ala Gly Leu Leu Ser Phe Val Phe Phe Glu Leu Ala Arg  
325 330 335

Asn Pro Glu Val Thr Asn Lys Leu Arg Glu Glu Ile Glu Asp Lys Phe  
340 345 350

Gly Leu Gly Glu Asn Ala Ser Val Glu Asp Ile Ser Phe Glu Ser Leu  
355 360 365

Lys Ser Cys Glu Tyr Leu Lys Ala Val Leu Asn Glu Thr Leu Arg Leu  
370 375 380

Tyr Pro Ser Val Pro Gln Asn Phe Arg Val Ala Thr Lys Asn Thr Thr  
385 390 395 400

Leu Pro Arg Gly Gly Gly Lys Asp Gly Leu Ser Pro Val Leu Val Arg  
405 410 415

Lys Gly Gln Thr Val Ile Tyr Gly Val Tyr Ala Ala His Arg Asn Pro  
420 425 430

Ala Val Tyr Gly Lys Asp Ala Leu Glu Phe Arg Pro Glu Arg Trp Phe  
435 440 445

Glu Pro Glu Thr Lys Lys Leu Gly Trp Ala Phe Leu Pro Phe Asn Gly  
 450 455 460

Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu Ala Ser  
 465 470 475 480

Tyr Val Thr Val Arg Leu Leu Gln Glu Phe Ala His Leu Ser Met Asp  
 485 490 495

Pro Asp Thr Glu Tyr Pro Pro Lys Lys Met Ser His Leu Thr Met Ser  
 500 505 510

Leu Phe Asp Gly Ala Asn Ile Glu Met Tyr  
 515 520

<210> 97  
 <211> 522  
 <212> PRT  
 <213> CANDIDATROPICALIS

<400> 97

Met Thr Ala Gln Asp Ile Ile Ala Thr Tyr Ile Thr Lys Trp Tyr Val  
 1 5 10 15

Ile Val Pro Leu Ala Leu Ile Ala Tyr Arg Val Leu Asp Tyr Phe Tyr  
 20 25 30

Gly Arg Tyr Leu Met Tyr Lys Leu Gly Ala Lys Pro Phe Phe Gln Lys  
 35 40 45

Gln Thr Asp Gly Tyr Phe Gly Phe Lys Ala Pro Leu Glu Leu Leu Lys  
 50 55 60

Lys Lys Ser Asp Gly Thr Leu Ile Asp Phe Thr Leu Glu Arg Ile Gln  
 65 70 75 80

Ala Leu Asn Arg Pro Asp Ile Pro Thr Phe Thr Phe Pro Ile Phe Ser  
 85 90 95

Ile Asn Leu Ile Ser Thr Leu Glu Pro Glu Asn Ile Lys Ala Ile Leu  
 100 105 110

Ala Thr Gln Phe Asn Asp Phe Ser Leu Gly Thr Arg His Ser His Phe  
 115 120 125

Ala Pro Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Ala Gly Trp  
 130 135 140

Lys His Ser Arg Ser Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Ile  
 145 150 155 160

Ser His Val Lys Leu Leu Glu Pro His Met Gln Val Phe Phe Lys His  
 165 170 175

Val Arg Lys Ala Gln Gly Lys Thr Phe Asp Ile Gln Glu Leu Phe Phe  
 180 185 190

Arg Leu Thr Val Asp Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val  
 195 200 205

Glu Ser Leu Arg Asp Glu Ser Ile Gly Met Ser Ile Asn Ala Leu Asp  
 210 215 220

Phe Asp Gly Lys Ala Gly Phe Ala Asp Ala Phe Asn Tyr Ser Gln Asn  
 225 230 235 240

Tyr Leu Ala Ser Arg Ala Val Met Gln Gln Leu Tyr Trp Val Leu Asn  
 245 250 255

Gly Lys Lys Phe Lys Glu Cys Asn Ala Lys Val His Lys Phe Ala Asp  
 260 265 270

Tyr Tyr Val Ser Lys Ala Leu Asp Leu Thr Pro Glu Gln Leu Glu Lys  
 275 280 285

Gln Asp Gly Tyr Val Phe Leu Tyr Glu Leu Val Lys Gln Thr Arg Asp  
 290 295 300

Arg Gln Val Leu Arg Asp Gln Leu Leu Asn Ile Met Val Ala Gly Arg  
 305 310 315 320

Asp Thr Thr Ala Gly Leu Leu Ser Phe Val Phe Phe Glu Leu Ala Arg  
 325 330 335

Asn Pro Glu Val Thr Asn Lys Leu Arg Glu Glu Ile Glu Asp Lys Phe  
 340 345 350

Gly Leu Gly Glu Asn Ala Arg Val Glu Asp Ile Ser Phe Glu Ser Leu  
 355 360 365

Lys Ser Cys Glu Tyr Leu Lys Ala Val Leu Asn Glu Thr Leu Arg Leu  
 370 375 380

Tyr Pro Ser Val Pro Gln Asn Phe Arg Val Ala Thr Lys Asn Thr Thr  
 385 390 395 400

Leu Pro Arg Gly Gly Gly Lys Asp Gly Leu Ser Pro Val Leu Val Arg  
 405 410 415

Lys Gly Gln Thr Val Met Tyr Gly Val Tyr Ala Ala His Arg Asn Pro  
 420 425 430

Ala Val Tyr Gly Lys Asp Ala Leu Glu Phe Arg Pro Glu Arg Trp Phe  
 435 440 445

Glu Pro Glu Thr Lys Lys Leu Gly Trp Ala Phe Leu Pro Phe Asn Gly  
 450 455 460

Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu Ala Ser  
 465 470 475 480

Tyr Val Thr Val Arg Leu Leu Gln Glu Phe Gly His Leu Ser Met Asp  
 485 490 495

Pro Asn Thr Glu Tyr Pro Pro Arg Lys Met Ser His Leu Thr Met Ser  
 500 505 510

Leu Phe Asp Gly Ala Asn Ile Glu Met Tyr  
 515 520

<210> 98  
 <211> 540  
 <212> PRT  
 <213> CANDIDATROPICALIS

<400> 98

Met Ser Ser Ser Pro Ser Phe Ala Gln Glu Val Leu Ala Thr Thr Ser  
 1 5 10 15

Pro Tyr Ile Glu Tyr Phe Leu Asp Asn Tyr Thr Arg Trp Tyr Tyr Phe  
20 25 30

Ile Pro Leu Val Leu Leu Ser Leu Asn Phe Ile Ser Leu Leu His Thr  
35 40 45

Arg Tyr Leu Glu Arg Arg Phe His Ala Lys Pro Leu Gly Asn Phe Val  
50 55 60

Arg Asp Pro Thr Phe Gly Ile Ala Thr Pro Leu Leu Leu Ile Tyr Leu  
65 70 75 80

Lys Ser Lys Gly Thr Val Met Lys Phe Ala Trp Gly Leu Trp Asn Asn  
85 90 95

Lys Tyr Ile Val Arg Asp Pro Lys Tyr Lys Thr Thr Gly Leu Arg Ile  
100 105 110

Val Gly Leu Pro Leu Ile Glu Thr Met Asp Pro Glu Asn Ile Lys Ala  
115 120 125

Val Leu Ala Thr Gln Phe Asn Asp Phe Ser Leu Gly Thr Arg His Asp  
130 135 140

Phe Leu Tyr Ser Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Ala  
145 150 155 160

Gly Trp Lys His Ser Arg Thr Met Leu Arg Pro Gln Phe Ala Arg Glu  
165 170 175

Gln Val Ser His Val Lys Leu Leu Glu Pro His Val Gln Val Phe Phe  
180 185 190

Lys His Val Arg Lys His Arg Gly Gln Thr Phe Asp Ile Gln Glu Leu  
195 200 205

Phe Phe Arg Leu Thr Val Asp Ser Ala Thr Glu Phe Leu Phe Gly Glu  
210 215 220

Ser Ala Glu Ser Leu Arg Asp Glu Ser Ile Gly Leu Thr Pro Thr Thr  
225 230 235 240



Lys Asp Phe Asp Gly Arg Arg Asp Phe Ala Asp Ala Phe Asn Tyr Ser  
245 250 255

Gln Thr Tyr Gln Ala Tyr Arg Phe Leu Leu Gln Gln Met Tyr Trp Ile  
260 265 270

Leu Asn Gly Ser Glu Phe Arg Lys Ser Ile Ala Val Val His Lys Phe  
275 280 285

Ala Asp His Tyr Val Gln Lys Ala Leu Glu Leu Thr Asp Asp Asp Leu  
290 295 300

Gln Lys Gln Asp Gly Tyr Val Phe Leu Tyr Glu Leu Ala Lys Gln Thr  
305 310 315 320

Arg Asp Pro Lys Val Leu Arg Asp Gln Leu Leu Asn Ile Leu Val Ala  
325 330 335

Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Val Phe Tyr Glu Leu  
340 345 350

Ser Arg Asn Pro Glu Val Phe Ala Lys Leu Arg Glu Glu Val Glu Asn  
355 360 365

Arg Phe Gly Leu Gly Glu Glu Ala Arg Val Glu Glu Ile Ser Phe Glu  
370 375 380

Ser Leu Lys Ser Cys Glu Tyr Leu Lys Ala Val Ile Asn Glu Thr Leu  
385 390 395 400

Arg Leu Tyr Pro Ser Val Pro His Asn Phe Arg Val Ala Thr Arg Asn  
405 410 415

Thr Thr Leu Pro Arg Gly Gly Gly Glu Asp Gly Tyr Ser Pro Ile Val  
420 425 430

Val Lys Lys Gly Gln Val Val Met Tyr Thr Val Ile Ala Thr His Arg  
435 440 445

Asp Pro Ser Ile Tyr Gly Ala Asp Ala Asp Val Phe Arg Pro Glu Arg  
450 455 460

Trp Phe Glu Pro Glu Thr Arg Lys Leu Gly Trp Ala Tyr Val Pro Phe  
465 470 475 480

Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu  
485 490 495

Ala Ser Tyr Val Thr Val Arg Leu Leu Gln Glu Phe Ala His Leu Ser  
500 505 510

Met Asp Pro Asp Thr Glu Tyr Pro Pro Lys Leu Gln Asn Thr Leu Thr  
515 520 525

Leu Ser Leu Phe Asp Gly Ala Asp Val Arg Met Tyr  
530 535 540

<210> 99  
<211> 540  
<212> PRT  
<213> CANDIDATROPICALIS

<400> 99

Met Ser Ser Ser Pro Ser Phe Ala Gln Glu Val Leu Ala Thr Thr Ser  
1 5 10 15

Pro Tyr Ile Glu Tyr Phe Leu Asp Asn Tyr Thr Arg Trp Tyr Tyr Phe  
20 25 30

Ile Pro Leu Val Leu Leu Ser Leu Asn Phe Ile Ser Leu Leu His Thr  
35 40 45

Lys Tyr Leu Glu Arg Arg Phe His Ala Lys Pro Leu Gly Asn Val Val  
50 55 60

Leu Asp Pro Thr Phe Gly Ile Ala Thr Pro Leu Ile Leu Ile Tyr Leu  
65 70 75 80

Lys Ser Lys Gly Thr Val Met Lys Phe Ala Trp Ser Phe Trp Asn Asn  
85 90 95

Lys Tyr Ile Val Lys Asp Pro Lys Tyr Lys Thr Thr Gly Leu Arg Ile  
100 105 110

Val Gly Leu Pro Leu Ile Glu Thr Ile Asp Pro Glu Asn Ile Lys Ala  
115 120 125

Val Leu Ala Thr Gln Phe Asn Asp Phe Ser Leu Gly Thr Arg His Asp  
 130 135 140

Phe Leu Tyr Ser Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Ala  
 145 150 155 160

Gly Trp Lys His Ser Arg Thr Met Leu Arg Pro Gln Phe Ala Arg Glu  
 165 170 175

Gln Val Ser His Val Lys Leu Leu Glu Pro His Val Gln Val Phe Phe  
 180 185 190

Lys His Val Arg Lys His Arg Gly Gln Thr Phe Asp Ile Gln Glu Leu  
 195 200 205

Phe Phe Arg Leu Thr Val Asp Ser Ala Thr Glu Phe Leu Phe Gly Glu  
 210 215 220

Ser Ala Glu Ser Leu Arg Asp Asp Ser Val Gly Leu Thr Pro Thr Thr  
 225 230 235 240

Lys Asp Phe Glu Gly Arg Gly Asp Phe Ala Asp Ala Phe Asn Tyr Ser  
 245 250 255

Gln Thr Tyr Gln Ala Tyr Arg Phe Leu Leu Gln Gln Met Tyr Trp Ile  
 260 265 270

Leu Asn Gly Ala Glu Phe Arg Lys Ser Ile Ala Ile Val His Lys Phe  
 275 280 285

Ala Asp His Tyr Val Gln Lys Ala Leu Glu Leu Thr Asp Asp Asp Leu  
 290 295 300

Gln Lys Gln Asp Gly Tyr Val Phe Leu Tyr Glu Leu Ala Lys Gln Thr  
 305 310 315 320

Arg Asp Pro Lys Val Leu Arg Asp Gln Leu Leu Asn Ile Leu Val Ala  
 325 330 335

Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Val Phe Tyr Glu Leu  
 340 345 350

Ser Arg Asn Pro Glu Val Phe Ala Lys Leu Arg Glu Glu Val Glu Asn  
 355 360 365

Arg Phe Gly Leu Gly Glu Glu Ala Arg Val Glu Glu Ile Ser Phe Glu  
 370 375 380

Ser Leu Lys Ser Cys Glu Tyr Leu Lys Ala Val Ile Asn Glu Ala Leu  
 385 390 395 400

Arg Leu Tyr Pro Ser Val Pro His Asn Phe Arg Val Ala Thr Arg Asn  
 405 410 415

Thr Thr Leu Pro Arg Gly Gly Gly Lys Asp Gly Cys Ser Pro Ile Val  
 420 425 430

Val Lys Lys Gly Gln Val Val Met Tyr Thr Val Ile Gly Thr His Arg  
 435 440 445

Asp Pro Ser Ile Tyr Gly Ala Asp Ala Asp Val Phe Arg Pro Glu Arg  
 450 455 460

Trp Phe Glu Pro Glu Thr Arg Lys Leu Gly Trp Ala Tyr Val Pro Phe  
 465 470 475 480

Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu  
 485 490 495

Ala Ser Tyr Val Thr Val Arg Leu Leu Gln Glu Phe Gly Asn Leu Ser  
 500 505 510

Leu Asp Pro Asn Ala Glu Tyr Pro Pro Lys Leu Gln Asn Thr Leu Thr  
 515 520 525

Leu Ser Leu Phe Asp Gly Ala Asp Val Arg Met Phe  
 530 535 540

<210> 100

<211> 517

<212> PRT

<213> CANDIDATROPICALIS

<400> 100

Met Ile Glu Gln Leu Leu Glu Tyr Trp Tyr Val Val Val Pro Val Leu  
 1 5 10 15

Tyr Ile Ile Lys Gln Leu Leu Ala Tyr Thr Lys Thr Arg Val Leu Met  
 20 25 30

Lys Lys Leu Gly Ala Ala Pro Val Thr Asn Lys Leu Tyr Asp Asn Ala  
 35 40 45

Phe Gly Ile Val Asn Gly Trp Lys Ala Leu Gln Phe Lys Lys Glu Gly  
 50 55 60

Arg Ala Gln Glu Tyr Asn Asp Tyr Lys Phe Asp His Ser Lys Asn Pro  
 65 70 75 80

Ser Val Gly Thr Tyr Val Ser Ile Leu Phe Gly Thr Arg Ile Val Val  
 85 90 95

Thr Lys Asp Pro Glu Asn Ile Lys Ala Ile Leu Ala Thr Gln Phe Gly  
 100 105 110

Asp Phe Ser Leu Gly Lys Arg His Thr Leu Phe Lys Pro Leu Leu Gly  
 115 120 125

Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly Trp Lys His Ser Arg Ala  
 130 135 140

Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser  
 145 150 155 160

Leu Glu Pro His Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys  
 165 170 175

Gly Glu Tyr Phe Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp  
 180 185 190

Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp  
 195 200 205

Glu Ser Ile Gly Ile Asn Gln Asp Asp Ile Asp Phe Ala Gly Arg Lys  
 210 215 220

Asp Phe Ala Glu Ser Phe Asn Lys Ala Gln Glu Tyr Leu Ala Ile Arg  
 225 230 235 240

Thr Leu Val Gln Thr Phe Tyr Trp Leu Val Asn Asn Lys Glu Phe Arg  
245 250 255

Asp Cys Thr Lys Leu Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys  
260 265 270

Ala Leu Asp Ala Ser Pro Glu Glu Leu Glu Lys Gln Ser Gly Tyr Val  
275 280 285

Phe Leu Tyr Glu Leu Val Lys Gln Thr Arg Asp Pro Asn Val Leu Arg  
290 295 300

Asp Gln Ser Leu Asn Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly  
305 310 315 320

Leu Leu Ser Phe Ala Val Phe Glu Leu Ala Arg His Pro Glu Ile Trp  
325 330 335

Ala Lys Leu Arg Glu Glu Ile Glu Gln Gln Phe Gly Leu Gly Glu Asp  
340 345 350

Ser Arg Val Glu Glu Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr  
355 360 365

Leu Lys Ala Phe Leu Asn Glu Thr Leu Arg Ile Tyr Pro Ser Val Pro  
370 375 380

Arg Asn Phe Arg Ile Ala Thr Lys Asn Thr Thr Leu Pro Arg Gly Gly  
385 390 395 400

Gly Ser Asp Gly Thr Ser Pro Ile Leu Ile Gln Lys Gly Glu Ala Val  
405 410 415

Ser Tyr Gly Ile Asn Ser Thr His Leu Asp Pro Val Tyr Tyr Gly Pro  
420 425 430

Asp Ala Ala Glu Phe Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Lys  
435 440 445

Lys Leu Gly Trp Ala Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys  
450 455 460

Leu Gly Gln Gln Phe Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg  
465 470 475 480

Leu Val Gln Glu Phe Ser His Val Arg Leu Asp Pro Asp Glu Val Tyr  
485 490 495

Pro Pro Lys Arg Leu Thr Asn Leu Thr Met Cys Leu Gln Asp Gly Ala  
500 505 510

Ile Val Lys Phe Asp  
515

<210> 101  
<211> 517  
<212> PRT  
<213> CANDIDATROPICALIS

<400> 101

Met Ile Glu Gln Ile Leu Glu Tyr Trp Tyr Ile Val Val Pro Val Leu  
1 5 10 15

Tyr Ile Ile Lys Gln Leu Ile Ala Tyr Ser Lys Thr Arg Val Leu Met  
20 25 30

Lys Gln Leu Gly Ala Ala Pro Ile Thr Asn Gln Leu Tyr Asp Asn Val  
35 40 45

Phe Gly Ile Val Asn Gly Trp Lys Ala Leu Gln Phe Lys Lys Glu Gly  
50 55 60

Arg Ala Gln Glu Tyr Asn Asp His Lys Phe Asp Ser Ser Lys Asn Pro  
65 70 75 80

Ser Val Gly Thr Tyr Val Ser Ile Leu Phe Gly Thr Lys Ile Val Val  
85 90 95

Thr Lys Asp Pro Glu Asn Ile Lys Ala Ile Leu Ala Thr Gln Phe Gly  
100 105 110

Asp Phe Ser Leu Gly Lys Arg His Ala Leu Phe Lys Pro Leu Leu Gly  
115 120 125

Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly Trp Lys His Ser Arg Ser  
130 135 140

Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser  
145 150 155 160

Leu Glu Pro His Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys  
165 170 175

Gly Glu Tyr Phe Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp  
180 185 190

Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp  
195 200 205

Glu Thr Ile Gly Ile Asn Gln Asp Asp Ile Asp Phe Ala Gly Arg Lys  
210 215 220

Asp Phe Ala Glu Ser Phe Asn Lys Ala Gln Glu Tyr Leu Ser Ile Arg  
225 230 235 240

Ile Leu Val Gln Thr Phe Tyr Trp Leu Ile Asn Asn Lys Glu Phe Arg  
245 250 255

Asp Cys Thr Lys Leu Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys  
260 265 270

Ala Leu Asp Ala Thr Pro Glu Glu Leu Glu Lys Gln Gly Gly Tyr Val  
275 280 285

Phe Leu Tyr Glu Leu Val Lys Gln Thr Arg Asp Pro Lys Val Leu Arg  
290 295 300

Asp Gln Ser Leu Asn Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly  
305 310 315 320

Leu Leu Ser Phe Ala Val Phe Glu Leu Ala Arg Asn Pro His Ile Trp  
325 330 335

Ala Lys Leu Arg Glu Glu Ile Glu Gln Gln Phe Gly Leu Gly Glu Asp  
340 345 350

Ser Arg Val Glu Glu Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr  
355 360 365



Leu Lys Ala Phe Leu Asn Glu Thr Leu Arg Val Tyr Pro Ser Val Pro  
 370 375 380

Arg Asn Phe Arg Ile Ala Thr Lys Asn Thr Thr Leu Pro Arg Gly Gly  
 385 390 395 400

Gly Pro Asp Gly Thr Gln Pro Ile Leu Ile Gln Lys Gly Glu Gly Val  
 405 410 415

Ser Tyr Gly Ile Asn Ser Thr His Leu Asp Pro Val Tyr Tyr Gly Pro  
 420 425 430

Asp Ala Ala Glu Phe Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Arg  
 435 440 445

Lys Leu Gly Trp Ala Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys  
 450 455 460

Leu Gly Gln Gln Phe Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg  
 465 470 475 480

Leu Val Gln Glu Phe Ser His Ile Arg Leu Asp Pro Asp Glu Val Tyr  
 485 490 495

Pro Pro Lys Arg Leu Thr Asn Leu Thr Met Cys Leu Gln Asp Gly Ala  
 500 505 510

Ile Val Lys Phe Asp  
 515

<210> 102

<211> 512

<212> PRT

<213> CANDIDATROPICALIS

<400> 102

Met Leu Asp Gln Ile Leu His Tyr Trp Tyr Ile Val Leu Pro Leu Leu  
 1 5 10 15

Ala Ile Ile Asn Gln Ile Val Ala His Val Arg Thr Asn Tyr Leu Met  
 20 25 30

Lys Lys Leu Gly Ala Lys Pro Phe Thr His Val Gln Arg Asp Gly Trp  
 35 40 45

Leu Gly Phe Lys Phe Gly Arg Glu Phe Leu Lys Ala Lys Ser Ala Gly  
50 55 60

Arg Leu Val Asp Leu Ile Ile Ser Arg Phe His Asp Asn Glu Asp Thr  
65 70 75 80

Phe Ser Ser Tyr Ala Phe Gly Asn His Val Val Phe Thr Arg Asp Pro  
85 90 95

Glu Asn Ile Lys Ala Leu Leu Ala Thr Gln Phe Gly Asp Phe Ser Leu  
100 105 110

Gly Ser Arg Val Lys Phe Phe Lys Pro Leu Leu Gly Tyr Gly Ile Phe  
115 120 125

Thr Leu Asp Ala Glu Gly Trp Lys His Ser Arg Ala Met Leu Arg Pro  
130 135 140

Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser Leu Glu Pro His  
145 150 155 160

Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys Gly Glu Tyr Phe  
165 170 175

Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp Ser Ala Thr Glu  
180 185 190

Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp Glu Glu Ile Gly  
195 200 205

Tyr Asp Thr Lys Asp Met Ser Glu Glu Arg Arg Arg Phe Ala Asp Ala  
210 215 220

Phe Asn Lys Ser Gln Val Tyr Val Ala Thr Arg Val Ala Leu Gln Asn  
225 230 235 240

Leu Tyr Trp Leu Val Asn Asn Lys Glu Phe Lys Glu Cys Asn Asp Ile  
245 250 255

Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys Ala Leu Asp Ala Thr  
260 265 270

Pro Glu Glu Leu Glu Lys Gln Gly Gly Tyr Val Phe Leu Tyr Glu Leu  
275 280 285

Val Lys Gln Thr Arg Asp Pro Lys Val Leu Arg Asp Gln Ser Leu Asn  
290 295 300

Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Ala  
305 310 315 320

Val Phe Glu Leu Ala Arg Asn Pro His Ile Trp Ala Lys Leu Arg Glu  
325 330 335

Glu Ile Glu Gln Gln Phe Gly Leu Gly Glu Asp Ser Arg Val Glu Glu  
340 345 350

Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr Leu Lys Ala Val Leu  
355 360 365

Asn Glu Thr Leu Arg Leu His Pro Ser Val Pro Arg Asn Ala Arg Phe  
370 375 380

Ala Ile Lys Asp Thr Thr Leu Pro Arg Gly Gly Gly Pro Asn Gly Lys  
385 390 395 400

Asp Pro Ile Leu Ile Arg Lys Asp Glu Val Val Gln Tyr Ser Ile Ser  
405 410 415

Ala Thr Gln Thr Asn Pro Ala Tyr Tyr Gly Ala Asp Ala Ala Asp Phe  
420 425 430

Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Arg Asn Leu Gly Trp Ala  
435 440 445

Phe Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe  
450 455 460

Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg Leu Val Gln Glu Phe  
465 470 475 480

Pro Asn Leu Ser Gln Asp Pro Glu Thr Lys Tyr Pro Pro Pro Arg Leu  
485 490 495

Ala His Leu Thr Met Cys Leu Phe Asp Gly Ala His Val Lys Met Ser  
 500 505 510

<210> 103

<211> 512

<212> PRT

<213> CANDIDATROPICALIS

<400> 103

Met Leu Asp Gln Ile Phe His Tyr Trp Tyr Ile Val Leu Pro Leu Leu  
 1 5 10 15

Val Ile Ile Lys Gln Ile Val Ala His Ala Arg Thr Asn Tyr Leu Met  
 20 25 30

Lys Lys Leu Gly Ala Lys Pro Phe Thr His Val Gln Leu Asp Gly Trp  
 35 40 45

Phe Gly Phe Lys Phe Gly Arg Glu Phe Leu Lys Ala Lys Ser Ala Gly  
 50 55 60

Arg Gln Val Asp Leu Ile Ile Ser Arg Phe His Asp Asn Glu Asp Thr  
 65 70 75 80

Phe Ser Ser Tyr Ala Phe Gly Asn His Val Val Phe Thr Arg Asp Pro  
 85 90 95

Glu Asn Ile Lys Ala Leu Leu Ala Thr Gln Phe Gly Asp Phe Ser Leu  
 100 105 110

Gly Ser Arg Val Lys Phe Phe Lys Pro Leu Leu Gly Tyr Gly Ile Phe  
 115 120 125

Thr Leu Asp Gly Glu Gly Trp Lys His Ser Arg Ala Met Leu Arg Pro  
 130 135 140

Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser Leu Glu Pro His  
 145 150 155 160

Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys Gly Glu Tyr Phe  
 165 170 175

Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp Ser Ala Thr Glu  
 180 185 190

Phe Leu Phe Gly Glu Ser Val His Ser Leu Arg Asp Glu Glu Ile Gly  
 195 200 205

Tyr Asp Thr Lys Asp Met Ala Glu Glu Arg Arg Lys Phe Ala Asp Ala  
 210 215 220

Phe Asn Lys Ser Gln Val Tyr Leu Ser Thr Arg Val Ala Leu Gln Thr  
 225 230 235 240

Leu Tyr Trp Leu Val Asn Asn Lys Glu Phe Lys Glu Cys Asn Asp Ile  
 245 250 255

Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys Ala Leu Asp Ala Thr  
 260 265 270

Pro Glu Glu Leu Glu Lys Gln Gly Gly Tyr Val Phe Leu Tyr Glu Leu  
 275 280 285

Ala Lys Gln Thr Lys Asp Pro Asn Val Leu Arg Asp Gln Ser Leu Asn  
 290 295 300

Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Ala  
 305 310 315 320

Val Phe Glu Leu Ala Arg Asn Pro His Ile Trp Ala Lys Leu Arg Glu  
 325 330 335

Glu Ile Glu Ser His Phe Gly Leu Gly Glu Asp Ser Arg Val Glu Glu  
 340 345 350

Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr Leu Lys Ala Val Leu  
 355 360 365

Asn Glu Thr Leu Arg Leu His Pro Ser Val Pro Arg Asn Ala Arg Phe  
 370 375 380

Ala Ile Lys Asp Thr Thr Leu Pro Arg Gly Gly Gly Pro Asn Gly Lys  
 385 390 395 400

Asp Pro Ile Leu Ile Arg Lys Asn Glu Val Val Gln Tyr Ser Ile Ser  
 405 410 415

Ala Thr Gln Thr Asn Pro Ala Tyr Tyr Gly Ala Asp Ala Ala Asp Phe  
420 425 430

Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Arg Asn Leu Gly Trp Ala  
435 440 445

Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe  
450 455 460

Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg Leu Val Gln Glu Phe  
465 470 475 480

Pro Ser Leu Ser Gln Asp Pro Glu Thr Glu Tyr Pro Pro Pro Arg Leu  
485 490 495

Ala His Leu Thr Met Cys Leu Phe Asp Gly Ala Tyr Val Lys Met Gln  
500 505 510

<210> 104

<211> 499

<212> PRT

<213> CANDIDATROPICALIS

<400> 104

Met Ala Ile Ser Ser Leu Leu Ser Trp Asp Val Ile Cys Val Val Phe  
1 5 10 15

Ile Cys Val Cys Val Tyr Phe Gly Tyr Glu Tyr Cys Tyr Thr Lys Tyr  
20 25 30

Leu Met His Lys His Gly Ala Arg Glu Ile Glu Asn Val Ile Asn Asp  
35 40 45

Gly Phe Phe Gly Phe Arg Leu Pro Leu Leu Leu Met Arg Ala Ser Asn  
50 55 60

Glu Gly Arg Leu Ile Glu Phe Ser Val Lys Arg Phe Glu Ser Ala Pro  
65 70 75 80

His Pro Gln Asn Lys Thr Leu Val Asn Arg Ala Leu Ser Val Pro Val  
85 90 95

Ile Leu Thr Lys Asp Pro Val Asn Ile Lys Ala Met Leu Ser Thr Gln  
100 105 110

Phe Asp Asp Phe Ser Leu Gly Leu Arg Leu His Gln Phe Ala Pro Leu  
115 120 125

Leu Gly Lys Gly Ile Phe Thr Leu Asp Gly Pro Glu Trp Lys Gln Ser  
130 135 140

Arg Ser Met Leu Arg Pro Gln Phe Ala Lys Asp Arg Val Ser His Ile  
145 150 155 160

Leu Asp Leu Glu Pro His Phe Val Leu Leu Arg Lys His Ile Asp Gly  
165 170 175

His Asn Gly Asp Tyr Phe Asp Ile Gln Glu Leu Tyr Phe Arg Phe Ser  
180 185 190

Met Asp Val Ala Thr Gly Phe Leu Phe Gly Glu Ser Val Gly Ser Leu  
195 200 205

Lys Asp Glu Asp Ala Arg Phe Leu Glu Ala Phe Asn Glu Ser Gln Lys  
210 215 220

Tyr Leu Ala Thr Arg Ala Thr Leu His Glu Leu Tyr Phe Leu Cys Asp  
225 230 235 240

Gly Phe Arg Phe Arg Gln Tyr Asn Lys Val Val Arg Lys Phe Cys Ser  
245 250 255

Gln Cys Val His Lys Ala Leu Asp Val Ala Pro Glu Asp Thr Ser Glu  
260 265 270

Tyr Val Phe Leu Arg Glu Leu Val Lys His Thr Arg Asp Pro Val Val  
275 280 285

Leu Gln Asp Gln Ala Leu Asn Val Leu Leu Ala Gly Arg Asp Thr Thr  
290 295 300

Ala Ser Leu Leu Ser Phe Ala Thr Phe Glu Leu Ala Arg Asn Asp His  
305 310 315 320

Met Trp Arg Lys Leu Arg Glu Glu Val Ile Leu Thr Met Gly Pro Ser  
325 330 335

Ser Asp Glu Ile Thr Val Ala Gly Leu Lys Ser Cys Arg Tyr Leu Lys  
 340 345 350

Ala Ile Leu Asn Glu Thr Leu Arg Leu Tyr Pro Ser Val Pro Arg Asn  
 355 360 365

Ala Arg Phe Ala Thr Arg Asn Thr Thr Leu Pro Arg Gly Gly Gly Pro  
 370 375 380

Asp Gly Ser Phe Pro Ile Leu Ile Arg Lys Gly Gln Pro Val Gly Tyr  
 385 390 395 400

Phe Ile Cys Ala Thr His Leu Asn Glu Lys Val Tyr Gly Asn Asp Ser  
 405 410 415

His Val Phe Arg Pro Glu Arg Trp Ala Ala Leu Glu Gly Lys Ser Leu  
 420 425 430

Gly Trp Ser Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ser Cys Leu Gly  
 435 440 445

Gln Gln Phe Ala Ile Leu Glu Ala Ser Tyr Val Leu Ala Arg Leu Thr  
 450 455 460

Gln Cys Tyr Thr Thr Ile Gln Leu Arg Thr Thr Glu Tyr Pro Pro Lys  
 465 470 475 480

Lys Leu Val His Leu Thr Met Ser Leu Leu Asn Gly Val Tyr Ile Arg  
 485 490 495

Thr Arg Thr

<210> 105

<211> 1712

<212> DNA

<213> Candida tropicalis

<400> 105

ggtagcagagc tcacgagttt tgggattttc gagtttggat tgtttccttt gttgattgaa 60

ttgacgaaac cagaggtttt caagacagat aagattgggt ttatcaaaac gcagtttgaa 120

atattccagt tggtttccaa gatattctga agaagattga cgatttgaaa tttgaagaag 180





<400> 106

Met Val Ser Thr Lys Thr Tyr Thr Glu Arg Ala Ser Ala His Pro Ser  
1 5 10 15

Lys Val Ala Gln Arg Leu Phe Arg Leu Met Glu Ser Lys Lys Thr Asn  
20 25 30

Leu Cys Ala Ser Ile Asp Val Thr Thr Thr Ala Glu Phe Leu Ser Leu  
35 40 45

Ile Asp Lys Leu Gly Pro His Ile Cys Leu Val Lys Thr His Ile Asp  
50 55 60

Ile Ile Ser Asp Phe Ser Tyr Glu Gly Thr Ile Glu Pro Leu Leu Val  
65 70 75 80

Leu Ala Glu Arg His Gly Phe Leu Ile Phe Glu Asp Arg Lys Phe Ala  
85 90 95

Asp Ile Gly Asn Thr Val Met Leu Gln Tyr Thr Ser Gly Val Tyr Arg  
100 105 110

Ile Ala Ala Trp Ser Asp Ile Thr Asn Ala His Gly Val Thr Gly Lys  
115 120 125

Gly Val Val Glu Gly Leu Lys Arg Gly Ala Glu Gly Val Glu Lys Glu  
130 135 140

Arg Gly Val Leu Met Leu Ala Glu Leu Ser Ser Lys Gly Ser Leu Ala  
145 150 155 160

His Gly Glu Tyr Thr Arg Glu Thr Ile Glu Ile Ala Lys Ser Asp Arg  
165 170 175

Glu Phe Val Ile Gly Phe Ile Ala Gln Arg Asp Met Gly Gly Arg Glu  
180 185 190

Glu Gly Phe Asp Trp Ile Ile Met Thr Pro Gly Val Gly Leu Asp Asp  
195 200 205

Lys Gly Asp Ala Leu Gly Gln Gln Tyr Arg Thr Val Asp Glu Val Val  
210 215 220

Leu Thr Gly Thr Asp Val Ile Ile Val Gly Arg Gly Leu Phe Gly Lys  
 225 230 235 240

Gly Arg Asp Pro Glu Val Glu Gly Lys Arg Tyr Arg Asp Ala Gly Trp  
 245 250 255

Lys Ala Tyr Leu Lys Arg Thr Gly Gln Leu Glu  
 260 265

<210> 107  
 <211> 473  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Primer

<400> 107  
 gtcaaagcaa attggtggcc caagcagact cttggaccac cgttgaatgg aacataagcc 60  
 cagcccaact tcttagtaga tggttcaaac catctttctg gtctgaagtc gtttagcgtcc 120  
 ttaccgtagt attcttccaa acgggtgggtc ttgtagacaa cgtaagcaac agtggagcct 180  
 ttaggaatgt agattgggtc ggtaccgtta gcaccaccac ctcttggcaa agtgggtgtct 240  
 ctgggtggcgg ttctaaagt gacaggaaca gatgggtaca tacgcaaggt ttcgttaagg 300  
 atagccttca agtattcaca tctcttcaag gcttcgaaag taatttcttc aacgcgggag 360  
 tcttcaccaa caccaaagt aacttcgatt tcttctctca acttggacca catctctggg 420  
 tgtctagcca attcaaaca agcaaaggac aacaaacccg cggtggtgtc tct 473

<210> 108  
 <211> 540  
 <212> DNA  
 <213> Candida tropicalis

<400> 108  
 tactaacttg ttgaggatct tataaccata cagcaacacg gtcacaacat gtagtagttt 60  
 gttgaggaac gtatgtgttt ctgagcgag aactactttt tcaaccacg acgaggtcag 120  
 tgtttgttca acatgctgtt gcgaaagcca tagcagttac ctaccttccg agaggtcaag 180  
 ttctttctcc cgtcccagat tctcatgttg ctaatgttca aactggtgag gttcttgggt 240  
 tcgcacccgt ggatgcagtc ataagaaaag ccgtgggtcct agcagcactg gtttctaggt 300  
 ctcttatagt ttcgataaaa ccgttgggtc aaaccactaa aaagaaaccc gttctccgtg 360

tgagaaaaat tcggaaacaa tccactaccc tagaagtgtg acctgccgct tccgaccttc 420  
 gtgtcgtctc ggtacaactc tgggtgtcaaa cgggtctcttg ttcaacgagt aactgcagc 480  
 aaccttggtg tgaaggtcaa caacttcttc gtataagaat tcgtgttccc acttatgaaa 540

<210> 109  
 <211> 29  
 <212> DNA  
 <213> Bacteriophage T7

<400> 109  
 ggatccta atcgactcact atagggagg 29

<210> 110  
 <211> 523  
 <212> PRT  
 <213> CANDIDATROPICALIS

<400> 110

Met Ala Thr Gln Glu Ile Ile Asp Ser Val Leu Pro Tyr Leu Thr Lys  
 1 5 10 15

Trp Tyr Thr Val Ile Thr Ala Ala Val Leu Val Phe Leu Ile Ser Thr  
 20 25 30

Asn Ile Lys Asn Tyr Val Lys Ala Lys Lys Leu Lys Cys Val Asp Pro  
 35 40 45

Pro Tyr Leu Lys Asp Ala Gly Leu Thr Gly Ile Ser Ser Leu Ile Ala  
 50 55 60

Ala Ile Lys Ala Lys Asn Asp Gly Arg Leu Ala Asn Phe Ala Asp Glu  
 65 70 75 80

Val Phe Asp Glu Tyr Pro Asn His Thr Phe Tyr Leu Ser Val Ala Gly  
 85 90 95

Ala Leu Lys Ile Val Met Thr Val Asp Pro Glu Asn Ile Lys Ala Val  
 100 105 110

Leu Ala Thr Gln Phe Thr Asp Phe Ser Leu Gly Thr Arg His Ala His  
 115 120 125

Phe Ala Pro Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly  
 130 135 140

Trp Lys His Ser Arg Ala Met Leu Arg Pro Gln Phe Ala Arg Asp Gln  
145 150 155 160

Ile Gly His Val Lys Ala Leu Glu Pro His Ile Gln Ile Met Ala Lys  
165 170 175

Gln Ile Lys Leu Asn Gln Gly Lys Thr Phe Asp Ile Gln Glu Leu Phe  
180 185 190

Phe Arg Phe Thr Val Asp Thr Ala Thr Glu Phe Leu Phe Gly Glu Ser  
195 200 205

Val His Ser Leu Tyr Asp Glu Lys Leu Gly Ile Pro Thr Pro Asn Glu  
210 215 220

Ile Pro Gly Arg Glu Asn Phe Ala Ala Ala Phe Asn Val Ser Gln His  
225 230 235 240

Tyr Leu Ala Thr Arg Ser Tyr Ser Gln Thr Phe Tyr Phe Leu Thr Asn  
245 250 255

Pro Lys Glu Phe Arg Asp Cys Asn Ala Lys Val His His Leu Ala Lys  
260 265 270

Tyr Phe Val Asn Lys Ala Leu Asn Phe Thr Pro Glu Glu Leu Glu Glu  
275 280 285

Lys Ser Lys Ser Gly Tyr Val Phe Leu Tyr Glu Leu Val Lys Gln Thr  
290 295 300

Arg Asp Pro Lys Val Leu Gln Asp Gln Leu Leu Asn Ile Met Val Ala  
305 310 315 320

Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Ala Leu Phe Glu Leu  
325 330 335

Ala Arg His Pro Glu Met Trp Ser Lys Leu Arg Glu Glu Ile Glu Val  
340 345 350

Asn Phe Gly Val Gly Glu Asp Ser Arg Val Glu Glu Ile Thr Phe Glu  
355 360 365

Ala Leu Lys Arg Cys Glu Tyr Leu Lys Ala Ile Leu Asn Glu Thr Leu  
370 375 380

Arg Met Tyr Pro Ser Val Pro Val Asn Phe Arg Thr Ala Thr Arg Asp  
385 390 395 400

Thr Thr Leu Pro Arg Gly Gly Gly Ala Asn Gly Thr Asp Pro Ile Tyr  
405 410 415

Ile Pro Lys Gly Ser Thr Val Ala Tyr Val Val Tyr Lys Thr His Arg  
420 425 430

Leu Glu Glu Tyr Tyr Gly Lys Asp Ala Asn Asp Phe Arg Pro Glu Arg  
435 440 445

Trp Phe Glu Pro Ser Thr Lys Lys Leu Gly Trp Ala Tyr Val Pro Phe  
450 455 460

Asn Gly Gly Pro Arg Val Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu  
465 470 475 480

Ala Ser Tyr Val Ile Thr Arg Leu Ala Gln Met Phe Glu Thr Val Ser  
485 490 495

Ser Asp Pro Gly Leu Glu Tyr Pro Pro Pro Lys Cys Ile His Leu Thr  
500 505 510

Met Ser His Asn Asp Gly Val Phe Val Lys Met  
515 520

<210> 111

<211> 540

<212> PRT

<213> CANDIDATROPICALIS

<400> 111

Met Ser Ser Ser Pro Ser Phe Ala Gln Glu Val Leu Ala Thr Thr Ser  
1 5 10 15

Pro Tyr Ile Glu Tyr Phe Leu Asp Asn Tyr Thr Arg Trp Tyr Tyr Phe  
20 25 30

Ile Pro Leu Val Leu Leu Ser Leu Asn Phe Ile Ser Leu Leu His Thr  
35 40 45

Lys Tyr Leu Glu Arg Arg Phe His Ala Lys Pro Leu Gly Asn Val Val  
50 55 60

Leu Asp Pro Thr Phe Gly Ile Ala Thr Pro Leu Ile Leu Ile Tyr Leu  
65 70 75 80

Lys Ser Lys Gly Thr Val Met Lys Phe Ala Trp Ser Phe Trp Asn Asn  
85 90 95

Lys Tyr Ile Val Lys Asp Pro Lys Tyr Lys Thr Thr Gly Leu Arg Ile  
100 105 110

Val Gly Leu Pro Leu Ile Glu Thr Ile Asp Pro Glu Asn Ile Lys Ala  
115 120 125

Val Leu Ala Thr Gln Phe Asn Asp Phe Ser Leu Gly Thr Arg His Asp  
130 135 140

Phe Leu Tyr Ser Leu Leu Gly Asp Gly Ile Phe Thr Leu Asp Gly Ala  
145 150 155 160

Gly Trp Lys His Ser Arg Thr Met Leu Arg Pro Gln Phe Ala Arg Glu  
165 170 175

Gln Val Ser His Val Lys Leu Leu Glu Pro His Val Gln Val Phe Phe  
180 185 190

Lys His Val Arg Lys His Arg Gly Gln Thr Phe Asp Ile Gln Glu Leu  
195 200 205

Phe Phe Arg Leu Thr Val Asp Ser Ala Thr Glu Phe Leu Phe Gly Glu  
210 215 220

Ser Ala Glu Ser Leu Arg Asp Asp Ser Val Gly Leu Thr Pro Thr Thr  
225 230 235 240

Lys Asp Phe Glu Gly Arg Gly Asp Phe Ala Asp Ala Phe Asn Tyr Ser  
245 250 255

Gln Thr Tyr Gln Ala Tyr Arg Phe Leu Leu Gln Gln Met Tyr Trp Ile  
260 265 270

Leu Asn Gly Ala Glu Phe Arg Lys Ser Ile Ala Ile Val His Lys Phe  
275 280 285

Ala Asp His Tyr Val Gln Lys Ala Leu Glu Leu Thr Asp Asp Asp Leu  
290 295 300

Gln Lys Gln Asp Gly Tyr Val Phe Leu Tyr Glu Leu Ala Lys Gln Thr  
305 310 315 320

Arg Asp Pro Lys Val Leu Arg Asp Gln Leu Leu Asn Ile Leu Val Ala  
325 330 335

Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Val Phe Tyr Glu Leu  
340 345 350

Ser Arg Asn Pro Glu Val Phe Ala Lys Leu Arg Glu Glu Val Glu Asn  
355 360 365

Arg Phe Gly Leu Gly Glu Glu Ala Arg Val Glu Glu Ile Ser Phe Glu  
370 375 380

Ser Leu Lys Ser Cys Glu Tyr Leu Lys Ala Val Ile Asn Glu Ala Leu  
385 390 395 400

Arg Leu Tyr Pro Ser Val Pro His Asn Phe Arg Val Ala Thr Arg Asn  
405 410 415

Thr Thr Leu Pro Arg Gly Gly Gly Lys Asp Gly Cys Ser Pro Ile Val  
420 425 430

Val Lys Lys Gly Gln Val Val Met Tyr Thr Val Ile Gly Thr His Arg  
435 440 445

Asp Pro Ser Ile Tyr Gly Ala Asp Ala Asp Val Phe Arg Pro Glu Arg  
450 455 460

Trp Phe Glu Pro Glu Thr Arg Lys Leu Gly Trp Ala Tyr Val Pro Phe  
465 470 475 480

Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe Ala Leu Thr Glu  
485 490 495



Ala Ser Tyr Val Thr Val Arg Leu Leu Gln Glu Phe Gly Asn Leu Ser  
500 505 510

Ser Asp Pro Asn Ala Glu Tyr Pro Pro Lys Leu Gln Asn Thr Leu Thr  
515 520 525

Leu Ser Leu Phe Asp Gly Ala Asp Val Arg Met Phe  
530 535 540

<210> 112  
<211> 517  
<212> PRT  
<213> CANDIDATROPICALIS

<400> 112

Met Ile Glu Gln Leu Leu Glu Tyr Trp Tyr Val Val Val Pro Val Leu  
1 5 10 15

Tyr Ile Ile Lys Gln Leu Leu Ala Tyr Thr Lys Thr Arg Val Leu Met  
20 25 30

Lys Lys Leu Gly Ala Ala Pro Val Thr Asn Lys Leu Tyr Asp Asn Ala  
35 40 45

Phe Gly Ile Val Asn Gly Trp Lys Ala Leu Gln Phe Lys Lys Glu Gly  
50 55 60

Arg Ala Gln Glu Tyr Asn Asp Tyr Lys Phe Asp His Ser Lys Asn Pro  
65 70 75 80

Ser Val Gly Thr Tyr Val Ser Ile Leu Phe Gly Thr Arg Ile Val Val  
85 90 95

Thr Lys Asp Pro Glu Asn Ile Lys Ala Ile Leu Ala Thr Gln Phe Gly  
100 105 110

Asp Phe Ser Leu Gly Lys Arg His Thr Leu Phe Lys Pro Leu Leu Gly  
115 120 125

Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly Trp Lys His Ser Arg Ala  
130 135 140

Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser  
145 150 155 160

Leu Glu Pro His Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys  
165 170 175

Gly Glu Tyr Phe Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp  
180 185 190

Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp  
195 200 205

Glu Ser Ile Gly Ile Asn Gln Asp Asp Ile Asp Phe Ala Gly Arg Lys  
210 215 220

Asp Phe Ala Glu Ser Phe Asn Lys Ala Gln Glu Tyr Leu Ala Ile Arg  
225 230 235 240

Thr Leu Val Gln Thr Phe Tyr Trp Leu Val Asn Asn Lys Glu Phe Arg  
245 250 255

Asp Cys Thr Lys Ser Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys  
260 265 270

Ala Leu Asp Ala Ser Pro Glu Glu Leu Glu Lys Gln Ser Gly Tyr Val  
275 280 285

Phe Leu Tyr Glu Leu Val Lys Gln Thr Arg Asp Pro Asn Val Leu Arg  
290 295 300

Asp Gln Ser Leu Asn Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly  
305 310 315 320

Leu Leu Ser Phe Ala Val Phe Glu Leu Ala Arg His Pro Glu Ile Trp  
325 330 335

Ala Lys Leu Arg Glu Glu Ile Glu Gln Gln Phe Gly Leu Gly Glu Asp  
340 345 350

Ser Arg Val Glu Glu Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr  
355 360 365

Leu Lys Ala Phe Leu Asn Glu Thr Leu Arg Ile Tyr Pro Ser Val Pro  
370 375 380

Arg Asn Phe Arg Ile Ala Thr Lys Asn Thr Thr Leu Pro Arg Gly Gly  
385 390 395 400

Gly Ser Asp Gly Thr Ser Pro Ile Leu Ile Gln Lys Gly Glu Ala Val  
405 410 415

Ser Tyr Gly Ile Asn Ser Thr His Leu Asp Pro Val Tyr Tyr Gly Pro  
420 425 430

Asp Ala Ala Glu Phe Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Lys  
435 440 445

Lys Leu Gly Trp Ala Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys  
450 455 460

Leu Gly Gln Gln Phe Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg  
465 470 475 480

Leu Val Gln Glu Phe Ser His Val Arg Ser Asp Pro Asp Glu Val Tyr  
485 490 495

Pro Pro Lys Arg Leu Thr Asn Leu Thr Met Cys Leu Gln Asp Gly Ala  
500 505 510

Ile Val Lys Phe Asp  
515

<210> 113

<211> 517

<212> PRT

<213> CANDIDATROPICALIS

<400> 113

Met Ile Glu Gln Ile Leu Glu Tyr Trp Tyr Ile Val Val Pro Val Leu  
1 5 10 15

Tyr Ile Ile Lys Gln Leu Ile Ala Tyr Ser Lys Thr Arg Val Leu Met  
20 25 30

Lys Gln Leu Gly Ala Ala Pro Ile Thr Asn Gln Leu Tyr Asp Asn Val  
35 40 45

Phe Gly Ile Val Asn Gly Trp Lys Ala Leu Gln Phe Lys Lys Glu Gly  
50 55 60

Arg Ala Gln Glu Tyr Asn Asp His Lys Phe Asp Ser Ser Lys Asn Pro  
 65 70 75 80  
 Ser Val Gly Thr Tyr Val Ser Ile Leu Phe Gly Thr Lys Ile Val Val  
 85 90 95  
 Thr Lys Asp Pro Glu Asn Ile Lys Ala Ile Leu Ala Thr Gln Phe Gly  
 100 105 110  
 Asp Phe Ser Leu Gly Lys Arg His Ala Leu Phe Lys Pro Leu Leu Gly  
 115 120 125  
 Asp Gly Ile Phe Thr Leu Asp Gly Glu Gly Trp Lys His Ser Arg Ser  
 130 135 140  
 Met Leu Arg Pro Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser  
 145 150 155 160  
 Leu Glu Pro His Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys  
 165 170 175  
 Gly Glu Tyr Phe Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp  
 180 185 190  
 Ser Ala Thr Glu Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp  
 195 200 205  
 Glu Thr Ile Gly Ile Asn Gln Asp Asp Ile Asp Phe Ala Gly Arg Lys  
 210 215 220  
 Asp Phe Ala Glu Ser Phe Asn Lys Ala Gln Glu Tyr Leu Ser Ile Arg  
 225 230 235 240  
 Ile Leu Val Gln Thr Phe Tyr Trp Leu Ile Asn Asn Lys Glu Phe Arg  
 245 250 255  
 Asp Cys Thr Lys Ser Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys  
 260 265 270  
 Ala Leu Asp Ala Thr Pro Glu Glu Leu Glu Lys Gln Gly Gly Tyr Val  
 275 280 285

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Phe	Leu	Tyr	Glu	Leu	Val	Lys	Gln	Thr	Arg	Asp	Pro	Lys	Val	Leu	Arg	290	295	300
Asp	Gln	Ser	Leu	Asn	Ile	Leu	Leu	Ala	Gly	Arg	Asp	Thr	Thr	Ala	Gly	305	310	315
Leu	Leu	Ser	Phe	Ala	Val	Phe	Glu	Leu	Ala	Arg	Asn	Pro	His	Ile	Trp	325	330	335
Ala	Lys	Leu	Arg	Glu	Glu	Ile	Glu	Gln	Gln	Phe	Gly	Leu	Gly	Glu	Asp	340	345	350
Ser	Arg	Val	Glu	Glu	Ile	Thr	Phe	Glu	Ser	Leu	Lys	Arg	Cys	Glu	Tyr	355	360	365
Leu	Lys	Ala	Phe	Leu	Asn	Glu	Thr	Leu	Arg	Val	Tyr	Pro	Ser	Val	Pro	370	375	380
Arg	Asn	Phe	Arg	Ile	Ala	Thr	Lys	Asn	Thr	Thr	Leu	Pro	Arg	Gly	Gly	385	390	395
Gly	Pro	Asp	Gly	Thr	Gln	Pro	Ile	Leu	Ile	Gln	Lys	Gly	Glu	Gly	Val	405	410	415
Ser	Tyr	Gly	Ile	Asn	Ser	Thr	His	Leu	Asp	Pro	Val	Tyr	Tyr	Gly	Pro	420	425	430
Asp	Ala	Ala	Glu	Phe	Arg	Pro	Glu	Arg	Trp	Phe	Glu	Pro	Ser	Thr	Arg	435	440	445
Lys	Leu	Gly	Trp	Ala	Tyr	Leu	Pro	Phe	Asn	Gly	Gly	Pro	Arg	Ile	Cys	450	455	460
Leu	Gly	Gln	Gln	Phe	Ala	Leu	Thr	Glu	Ala	Gly	Tyr	Val	Leu	Val	Arg	465	470	475
Leu	Val	Gln	Glu	Phe	Ser	His	Ile	Arg	Ser	Asp	Pro	Asp	Glu	Val	Tyr	485	490	495
Pro	Pro	Lys	Arg	Leu	Thr	Asn	Leu	Thr	Met	Cys	Leu	Gln	Asp	Gly	Ala	500	505	510

Ile Val Lys Phe Asp  
515

<210> 114  
<211> 512-~~515~~  
<212> PRT  
<213> CANDIDATROPICALIS

<400> 114

Met Leu Asp Gln Ile Leu His Tyr Trp Tyr Ile Val Leu Pro Leu Leu  
1 5 10 15

Ala Ile Ile Asn Gln Ile Val Ala His Val Arg Thr Asn Tyr Leu Met  
20 25 30

Lys Lys Leu Gly Ala Lys Pro Phe Thr His Val Gln Arg Asp Gly Trp  
35 40 45

Leu Gly Phe Lys Phe Gly Arg Glu Phe Leu Lys Ala Lys Ser Ala Gly  
50 55 60

Arg Ser Val Asp Leu Ile Ile Ser Arg Phe His Asp Asn Glu Asp Thr  
65 70 75 80

Phe Ser Ser Tyr Ala Phe Gly Asn His Val Val Phe Thr Arg Asp Pro  
85 90 95

Glu Asn Ile Lys Ala Leu Leu Ala Thr Gln Phe Gly Asp Phe Ser Leu  
100 105 110

Gly Ser Arg Val Lys Phe Phe Lys Pro Leu Leu Gly Tyr Gly Ile Phe  
115 120 125

Thr Leu Asp Ala Glu Gly Trp Lys His Ser Arg Ala Met Leu Arg Pro  
130 135 140

Gln Phe Ala Arg Glu Gln Val Ala His Val Thr Ser Leu Glu Pro His  
145 150 155 160

Phe Gln Leu Leu Lys Lys His Ile Leu Lys His Lys Gly Glu Tyr Phe  
165 170 175

Asp Ile Gln Glu Leu Phe Phe Arg Phe Thr Val Asp Ser Ala Thr Glu  
180 185 190

Phe Leu Phe Gly Glu Ser Val His Ser Leu Lys Asp Glu Glu Ile Gly  
195 200 205

Tyr Asp Thr Lys Asp Met Ser Glu Glu Arg Arg Arg Phe Ala Asp Ala  
210 215 220

Phe Asn Lys Ser Gln Val Tyr Val Ala Thr Arg Val Ala Leu Gln Asn  
225 230 235 240

Leu Tyr Trp Leu Val Asn Asn Lys Glu Phe Lys Glu Cys Asn Asp Ile  
245 250 255

Val His Lys Phe Thr Asn Tyr Tyr Val Gln Lys Ala Leu Asp Ala Thr  
260 265 270

Pro Glu Glu Leu Glu Lys Gln Gly Gly Tyr Val Phe Leu Tyr Glu Leu  
275 280 285

Val Lys Gln Thr Arg Asp Pro Lys Val Leu Arg Asp Gln Ser Leu Asn  
290 295 300

Ile Leu Leu Ala Gly Arg Asp Thr Thr Ala Gly Leu Leu Ser Phe Ala  
305 310 315 320

Val Phe Glu Leu Ala Arg Asn Pro His Ile Trp Ala Lys Leu Arg Glu  
325 330 335

Glu Ile Glu Gln Gln Phe Gly Leu Gly Glu Asp Ser Arg Val Glu Glu  
340 345 350

Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr Leu Lys Ala Val Leu  
355 360 365

Asn Glu Thr Leu Arg Leu His Pro Ser Val Pro Arg Asn Ala Arg Phe  
370 375 380

Ala Ile Lys Asp Thr Thr Leu Pro Arg Gly Gly Gly Pro Asn Gly Lys  
385 390 395 400

Asp Pro Ile Leu Ile Arg Lys Asp Glu Val Val Gln Tyr Ser Ile Ser  
405 410 415

Ala Thr Gln Thr Asn Pro Ala Tyr Tyr Gly Ala Asp Ala Ala Asp Phe  
420 425 430

Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Arg Asn Leu Gly Trp Ala  
435 440 445

Phe Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe  
450 455 460

Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg Leu Val Gln Glu Phe  
465 470 475 480

Pro Asn Leu Ser Gln Asp Pro Glu Thr Lys Tyr Pro Pro Pro Arg Leu  
485 490 495

Ala His Leu Thr Met Cys Leu Phe Asp Gly Ala His Val Lys Met Ser  
500 505 510

<210> 115

<211> 512

<212> PRT

<213> CANDIDATROPICALIS

<400> 115

Met Leu Asp Gln Ile Phe His Tyr Trp Tyr Ile Val Leu Pro Leu Leu  
1 5 10 15

Val Ile Ile Lys Gln Ile Val Ala His Ala Arg Thr Asn Tyr Leu Met  
20 25 30

Lys Lys Leu Gly Ala Lys Pro Phe Thr His Val Gln Leu Asp Gly Trp  
35 40 45

Phe Gly Phe Lys Phe Gly Arg Glu Phe Leu Lys Ala Lys Ser Ala Gly  
50 55 60

Arg Gln Val Asp Leu Ile Ile Ser Arg Phe His Asp Asn Glu Asp Thr  
65 70 75 80

Phe Ser Ser Tyr Ala Phe Gly Asn His Val Val Phe Thr Arg Asp Pro  
85 90 95

Glu Asn Ile Lys Ala Leu Leu Ala Thr Gln Phe Gly Asp Phe Ser Leu  
100 105 110



Gly	Ser	Arg	Val	Lys	Phe	Phe	Lys	Pro	Leu	Leu	Gly	Tyr	Gly	Ile	Phe	115	120	125
Thr	Leu	Asp	Gly	Glu	Gly	Trp	Lys	His	Ser	Arg	Ala	Met	Leu	Arg	Pro	130	135	140
Gln	Phe	Ala	Arg	Glu	Gln	Val	Ala	His	Val	Thr	Ser	Leu	Glu	Pro	His	145	150	155
Phe	Gln	Leu	Leu	Lys	Lys	His	Ile	Leu	Lys	His	Lys	Gly	Glu	Tyr	Phe	165	170	175
Asp	Ile	Gln	Glu	Leu	Phe	Phe	Arg	Phe	Thr	Val	Asp	Ser	Ala	Thr	Glu	180	185	190
Phe	Leu	Phe	Gly	Glu	Ser	Val	His	Ser	Leu	Arg	Asp	Glu	Glu	Ile	Gly	195	200	205
Tyr	Asp	Thr	Lys	Asp	Met	Ala	Glu	Glu	Arg	Arg	Lys	Phe	Ala	Asp	Ala	210	215	220
Phe	Asn	Lys	Ser	Gln	Val	Tyr	Leu	Ser	Thr	Arg	Val	Ala	Leu	Gln	Thr	225	230	235
Leu	Tyr	Trp	Leu	Val	Asn	Asn	Lys	Glu	Phe	Lys	Glu	Cys	Asn	Asp	Ile	245	250	255
Val	His	Lys	Phe	Thr	Asn	Tyr	Tyr	Val	Gln	Lys	Ala	Leu	Asp	Ala	Thr	260	265	270
Pro	Glu	Glu	Leu	Glu	Lys	Gln	Gly	Gly	Tyr	Val	Phe	Leu	Tyr	Glu	Leu	275	280	285
Ala	Lys	Gln	Thr	Lys	Asp	Pro	Asn	Val	Leu	Arg	Asp	Gln	Ser	Leu	Asn	290	295	300
Ile	Leu	Leu	Ala	Gly	Arg	Asp	Thr	Thr	Ala	Gly	Leu	Leu	Ser	Phe	Ala	305	310	315
Val	Phe	Glu	Leu	Ala	Arg	Asn	Pro	His	Ile	Trp	Ala	Lys	Leu	Arg	Glu	325	330	335

Glu Ile Glu Ser His Phe Gly Ser Gly Glu Asp Ser Arg Val Glu Glu  
340 345 350

Ile Thr Phe Glu Ser Leu Lys Arg Cys Glu Tyr Leu Lys Ala Val Leu  
355 360 365

Asn Glu Thr Leu Arg Leu His Pro Ser Val Pro Arg Asn Ala Arg Phe  
370 375 380

Ala Ile Lys Asp Thr Thr Leu Pro Arg Gly Gly Gly Pro Asn Gly Lys  
385 390 395 400

Asp Pro Ile Leu Ile Arg Lys Asn Glu Val Val Gln Tyr Ser Ile Ser  
405 410 415

Ala Thr Gln Thr Asn Pro Ala Tyr Tyr Gly Ala Asp Ala Ala Asp Phe  
420 425 430

Arg Pro Glu Arg Trp Phe Glu Pro Ser Thr Arg Asn Leu Gly Trp Ala  
435 440 445

Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ile Cys Leu Gly Gln Gln Phe  
450 455 460

Ala Leu Thr Glu Ala Gly Tyr Val Leu Val Arg Leu Val Gln Glu Phe  
465 470 475 480

Pro Ser Leu Ser Gln Asp Pro Glu Thr Glu Tyr Pro Pro Pro Arg Leu  
485 490 495

Ala His Leu Thr Met Cys Leu Phe Asp Gly Ala Tyr Val Lys Met Gln  
500 505 510

<210> 116

<211> 499

<212> PRT

<213> CANDIDATROPICALIS

<400> 116

Met Ala Ile Ser Ser Leu Leu Ser Trp Asp Val Ile Cys Val Val Phe  
1 5 10 15

Ile Cys Val Cys Val Tyr Phe Gly Tyr Glu Tyr Cys Tyr Thr Lys Tyr  
20 25 30

Leu Met His Lys His Gly Ala Arg Glu Ile Glu Asn Val Ile Asn Asp  
 35 40 45

Gly Phe Phe Gly Phe Arg Leu Pro Leu Leu Leu Met Arg Ala Ser Asn  
 50 55 60

Glu Gly Arg Leu Ile Glu Phe Ser Val Lys Arg Phe Glu Ser Ala Pro  
 65 70 75 80

His Pro Gln Asn Lys Thr Leu Val Asn Arg Ala Leu Ser Val Pro Val  
 85 90 95

Ile Leu Thr Lys Asp Pro Val Asn Ile Lys Ala Met Leu Ser Thr Gln  
 100 105 110

Phe Asp Asp Phe Ser Leu Gly Leu Arg Leu His Gln Phe Ala Pro Leu  
 115 120 125

Leu Gly Lys Gly Ile Phe Thr Leu Asp Gly Pro Glu Trp Lys Gln Ser  
 130 135 140

Arg Ser Met Leu Arg Pro Gln Phe Ala Lys Asp Arg Val Ser His Ile  
 145 150 155 160

Ser Asp Leu Glu Pro His Phe Val Leu Leu Arg Lys His Ile Asp Gly  
 165 170 175

His Asn Gly Asp Tyr Phe Asp Ile Gln Glu Leu Tyr Phe Arg Phe Ser  
 180 185 190

Met Asp Val Ala Thr Gly Phe Leu Phe Gly Glu Ser Val Gly Ser Leu  
 195 200 205

Lys Asp Glu Asp Ala Arg Phe Ser Glu Ala Phe Asn Glu Ser Gln Lys  
 210 215 220

Tyr Leu Ala Thr Arg Ala Thr Leu His Glu Leu Tyr Phe Leu Cys Asp  
 225 230 235 240

Gly Phe Arg Phe Arg Gln Tyr Asn Lys Val Val Arg Lys Phe Cys Ser  
 245 250 255

Gln Cys Val His Lys Ala Leu Asp Val Ala Pro Glu Asp Thr Ser Glu  
260 265 270

Tyr Val Phe Leu Arg Glu Leu Val Lys His Thr Arg Asp Pro Val Val  
275 280 285

Leu Gln Asp Gln Ala Leu Asn Val Leu Leu Ala Gly Arg Asp Thr Thr  
290 295 300

Ala Ser Leu Leu Ser Phe Ala Thr Phe Glu Leu Ala Arg Asn Asp His  
305 310 315 320

Met Trp Arg Lys Leu Arg Glu Glu Val Ile Ser Thr Met Gly Pro Ser  
325 330 335

Ser Asp Glu Ile Thr Val Ala Gly Leu Lys Ser Cys Arg Tyr Leu Lys  
340 345 350

Ala Ile Leu Asn Glu Thr Leu Arg Leu Tyr Pro Ser Val Pro Arg Asn  
355 360 365

Ala Arg Phe Ala Thr Arg Asn Thr Thr Leu Pro Arg Gly Gly Gly Pro  
370 375 380

Asp Gly Ser Phe Pro Ile Leu Ile Arg Lys Gly Gln Pro Val Gly Tyr  
385 390 395 400

Phe Ile Cys Ala Thr His Leu Asn Glu Lys Val Tyr Gly Asn Asp Ser  
405 410 415

His Val Phe Arg Pro Glu Arg Trp Ala Ala Leu Glu Gly Lys Ser Leu  
420 425 430

Gly Trp Ser Tyr Leu Pro Phe Asn Gly Gly Pro Arg Ser Cys Leu Gly  
435 440 445

Gln Gln Phe Ala Ile Leu Glu Ala Ser Tyr Val Leu Ala Arg Leu Thr  
450 455 460

Gln Cys Tyr Thr Thr Ile Gln Leu Arg Thr Thr Glu Tyr Pro Pro Lys  
465 470 475 480

Lys Leu Val His Leu Thr Met Ser Leu Leu Asn Gly Val Tyr Ile Arg  
485 490 495

Thr Arg Thr

<210> 117  
<211> 679  
<212> PRT  
<213> CANDIDATROPICALIS

<400> 117

Met Ala Leu Asp Lys Leu Asp Leu Tyr Val Ile Ile Thr Leu Val Val  
1 5 10 15

Ala Val Ala Ala Tyr Phe Ala Lys Asn Gln Phe Leu Asp Gln Pro Gln  
20 25 30

Asp Thr Gly Phe Leu Asn Thr Asp Ser Gly Ser Asn Ser Arg Asp Val  
35 40 45

Leu Ser Thr Leu Lys Lys Asn Asn Lys Asn Thr Leu Leu Leu Phe Gly  
50 55 60

Ser Gln Thr Gly Thr Ala Glu Asp Tyr Ala Asn Lys Leu Ser Arg Glu  
65 70 75 80

Leu His Ser Arg Phe Gly Leu Lys Thr Met Val Ala Asp Phe Ala Asp  
85 90 95

Tyr Asp Trp Asp Asn Phe Gly Asp Ile Thr Glu Asp Ile Leu Val Phe  
100 105 110

Phe Ile Val Ala Thr Tyr Gly Glu Gly Glu Pro Thr Asp Asn Ala Asp  
115 120 125

Glu Phe His Thr Trp Leu Thr Glu Glu Ala Asp Thr Leu Ser Thr Leu  
130 135 140

Lys Tyr Thr Val Phe Gly Leu Gly Asn Ser Thr Tyr Glu Phe Phe Asn  
145 150 155 160

Ala Ile Gly Arg Lys Phe Asp Arg Leu Leu Ser Glu Lys Gly Gly Asp  
165 170 175

Arg Phe Ala Glu Tyr Ala Glu Gly Asp Asp Gly Thr Gly Thr Leu Asp  
180 185 190

Glu Asp Phe Met Ala Trp Lys Asp Asn Val Phe Asp Ala Leu Lys Asn  
195 200 205

Asp Leu Asn Phe Glu Glu Lys Glu Leu Lys Tyr Glu Pro Asn Val Lys  
210 215 220

Leu Thr Glu Arg Asp Asp Leu Ser Ala Ala Asp Ser Gln Val Ser Leu  
225 230 235 240

Gly Glu Pro Asn Lys Lys Tyr Ile Asn Ser Glu Gly Ile Asp Leu Thr  
245 250 255

Lys Gly Pro Phe Asp His Thr His Pro Tyr Leu Ala Arg Ile Thr Glu  
260 265 270

Thr Arg Glu Leu Phe Ser Ser Lys Asp Arg His Cys Ile His Val Glu  
275 280 285

Phe Asp Ile Ser Glu Ser Asn Leu Lys Tyr Thr Thr Gly Asp His Leu  
290 295 300

Ala Ile Trp Pro Ser Asn Ser Asp Glu Asn Ile Lys Gln Phe Ala Lys  
305 310 315 320

Cys Phe Gly Leu Glu Asp Lys Leu Asp Thr Val Ile Glu Leu Lys Ala  
325 330 335

Leu Asp Ser Thr Tyr Thr Ile Pro Phe Pro Thr Pro Ile Thr Tyr Gly  
340 345 350

Ala Val Ile Arg His His Leu Glu Ile Ser Gly Pro Val Ser Arg Gln  
355 360 365

Phe Phe Leu Ser Ile Ala Gly Phe Ala Pro Asp Glu Glu Thr Lys Lys  
370 375 380

Ala Phe Thr Arg Leu Gly Gly Asp Lys Gln Glu Phe Ala Ala Lys Val  
385 390 395 400

Thr Arg Arg Lys Phe Asn Ile Ala Asp Ala Leu Leu Tyr Ser Ser Asn  
405 410 415

Asn Ala Pro Trp Ser Asp Val Pro Phe Glu Phe Leu Ile Glu Asn Val  
420 425 430

Pro His Leu Thr Pro Arg Tyr Tyr Ser Ile Ser Ser Ser Ser Leu Ser  
435 440 445

Glu Lys Gln Leu Ile Asn Val Thr Ala Val Val Glu Ala Glu Glu Glu  
450 455 460

Ala Asp Gly Arg Pro Val Thr Gly Val Val Thr Asn Leu Leu Lys Asn  
465 470 475 480

Val Glu Ile Val Gln Asn Lys Thr Gly Glu Lys Pro Leu Val His Tyr  
485 490 495

Asp Leu Ser Gly Pro Arg Gly Lys Phe Asn Lys Phe Lys Leu Pro Val  
500 505 510

His Val Arg Arg Ser Asn Phe Lys Leu Pro Lys Asn Ser Thr Thr Pro  
515 520 525

Val Ile Leu Ile Gly Pro Gly Thr Gly Val Ala Pro Leu Arg Gly Phe  
530 535 540

Val Arg Glu Arg Val Gln Gln Val Lys Asn Gly Val Asn Val Gly Lys  
545 550 555 560

Thr Leu Leu Phe Tyr Gly Cys Arg Asn Ser Asn Glu Asp Phe Leu Tyr  
565 570 575

Lys Gln Glu Trp Ala Glu Tyr Ala Ser Val Leu Gly Glu Asn Phe Glu  
580 585 590

Met Phe Asn Ala Phe Ser Arg Gln Asp Pro Ser Lys Lys Val Tyr Val  
595 600 605

Gln Asp Lys Ile Leu Glu Asn Ser Gln Leu Val His Glu Leu Leu Thr  
610 615 620

Glu Gly Ala Ile Ile Tyr Val Cys Gly Asp Ala Ser Arg Met Ala Arg  
625 630 635 640

Asp Val Gln Thr Thr Ile Ser Lys Ile Val Ala Lys Ser Arg Glu Ile  
645 650 655

Ser Glu Asp Lys Ala Ala Glu Leu Val Lys Ser Trp Lys Val Gln Asn  
660 665 670

Arg Tyr Gln Glu Asp Val Trp  
675

<210> 118

<211> 679

<212> PRT

<213> CANDIDATROPICALIS

<400> 118

Met Ala Leu Asp Lys Leu Asp Leu Tyr Val Ile Ile Thr Leu Val Val  
1 5 10 15

Ala Val Ala Ala Tyr Phe Ala Lys Asn Gln Phe Leu Asp Gln Pro Gln  
20 25 30

Asp Thr Gly Phe Leu Asn Thr Asp Ser Gly Ser Asn Ser Arg Asp Val  
35 40 45

Leu Ser Thr Leu Lys Lys Asn Asn Lys Asn Thr Leu Leu Leu Phe Gly  
50 55 60

Ser Gln Thr Gly Thr Ala Glu Asp Tyr Ala Asn Lys Leu Ser Arg Glu  
65 70 75 80

Leu His Ser Arg Phe Gly Leu Lys Thr Met Val Ala Asp Phe Ala Asp  
85 90 95

Tyr Asp Trp Asp Asn Phe Gly Asp Ile Thr Glu Asp Ile Leu Val Phe  
100 105 110

Phe Ile Val Ala Thr Tyr Gly Glu Gly Glu Pro Thr Asp Asn Ala Asp  
115 120 125

Glu Phe His Thr Trp Leu Thr Glu Glu Ala Asp Thr Leu Ser Thr Leu  
130 135 140



Arg Tyr Thr Val Phe Gly Leu Gly Asn Ser Thr Tyr Glu Phe Phe Asn  
145 150 155 160

Ala Ile Gly Arg Lys Phe Asp Arg Leu Leu Ser Glu Lys Gly Gly Asp  
165 170 175

Arg Phe Ala Glu Tyr Ala Glu Gly Asp Asp Gly Thr Gly Thr Leu Asp  
180 185 190

Glu Asp Phe Met Ala Trp Lys Asp Asn Val Phe Asp Ala Leu Lys Asn  
195 200 205

Asp Leu Asn Phe Glu Glu Lys Glu Leu Lys Tyr Glu Pro Asn Val Lys  
210 215 220

Leu Thr Glu Arg Asp Asp Leu Ser Ala Ala Asp Ser Gln Val Ser Leu  
225 230 235 240

Gly Glu Pro Asn Lys Lys Tyr Ile Asn Ser Glu Gly Ile Asp Leu Thr  
245 250 255

Lys Gly Pro Phe Asp His Thr His Pro Tyr Leu Ala Arg Ile Thr Glu  
260 265 270

Thr Arg Glu Leu Phe Ser Ser Lys Glu Arg His Cys Ile His Val Glu  
275 280 285

Phe Asp Ile Ser Glu Ser Asn Leu Lys Tyr Thr Thr Gly Asp His Leu  
290 295 300

Ala Ile Trp Pro Ser Asn Ser Asp Glu Asn Ile Lys Gln Phe Ala Lys  
305 310 315 320

Cys Phe Gly Leu Glu Asp Lys Leu Asp Thr Val Ile Glu Leu Lys Ala  
325 330 335

Leu Asp Ser Thr Tyr Thr Ile Pro Phe Pro Thr Pro Ile Thr Tyr Gly  
340 345 350

Ala Val Ile Arg His His Leu Glu Ile Ser Gly Pro Val Ser Arg Gln  
355 360 365

Phe Phe Leu Ser Ile Ala Gly Phe Ala Pro Asp Glu Glu Thr Lys Lys  
 370 375 380

Thr Phe Thr Arg Leu Gly Gly Asp Lys Gln Glu Phe Ala Thr Lys Val  
 385 390 395 400

Thr Arg Arg Lys Phe Asn Ile Ala Asp Ala Leu Leu Tyr Ser Ser Asn  
 405 410 415

Asn Thr Pro Trp Ser Asp Val Pro Phe Glu Phe Leu Ile Glu Asn Ile  
 420 425 430

Gln His Leu Thr Pro Arg Tyr Tyr Ser Ile Ser Ser Ser Ser Leu Ser  
 435 440 445

Glu Lys Gln Leu Ile Asn Val Thr Ala Val Val Glu Ala Glu Glu Glu  
 450 455 460

Ala Asp Gly Arg Pro Val Thr Gly Val Val Thr Asn Leu Leu Lys Asn  
 465 470 475 480

Ile Glu Ile Ala Gln Asn Lys Thr Gly Glu Lys Pro Leu Val His Tyr  
 485 490 495

Asp Leu Ser Gly Pro Arg Gly Lys Phe Asn Lys Phe Lys Leu Pro Val  
 500 505 510

His Val Arg Arg Ser Asn Phe Lys Leu Pro Lys Asn Ser Thr Thr Pro  
 515 520 525

Val Ile Leu Ile Gly Pro Gly Thr Gly Val Ala Pro Leu Arg Gly Phe  
 530 535 540

Val Arg Glu Arg Val Gln Gln Val Lys Asn Gly Val Asn Val Gly Lys  
 545 550 555 560

Thr Leu Leu Phe Tyr Gly Cys Arg Asn Ser Asn Glu Asp Phe Leu Tyr  
 565 570 575

Lys Gln Glu Trp Ala Glu Tyr Ala Ser Val Leu Gly Glu Asn Phe Glu  
 580 585 590

Met Phe Asn Ala Phe Ser Arg Gln Asp Pro Ser Lys Lys Val Tyr Val  
595 600 605

Gln Asp Lys Ile Leu Glu Asn Ser Gln Leu Val His Glu Leu Leu Thr  
610 615 620

Glu Gly Ala Ile Ile Tyr Val Cys Gly Asp Ala Ser Arg Met Ala Arg  
625 630 635 640

Asp Val Gln Thr Thr Ile Ser Lys Ile Val Ala Lys Ser Arg Glu Ile  
645 650 655

Ser Glu Asp Lys Ala Ala Glu Leu Val Lys Ser Trp Lys Val Gln Asn  
660 665 670

Arg Tyr Gln Glu Asp Val Trp  
675

107